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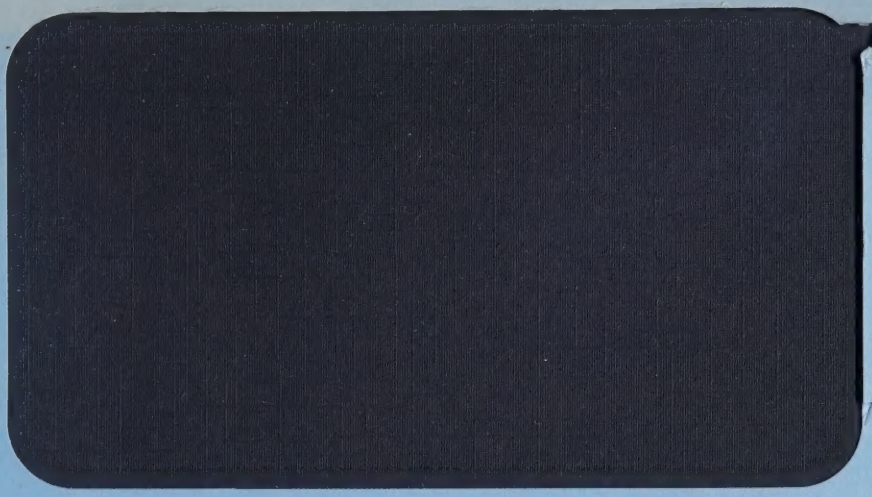
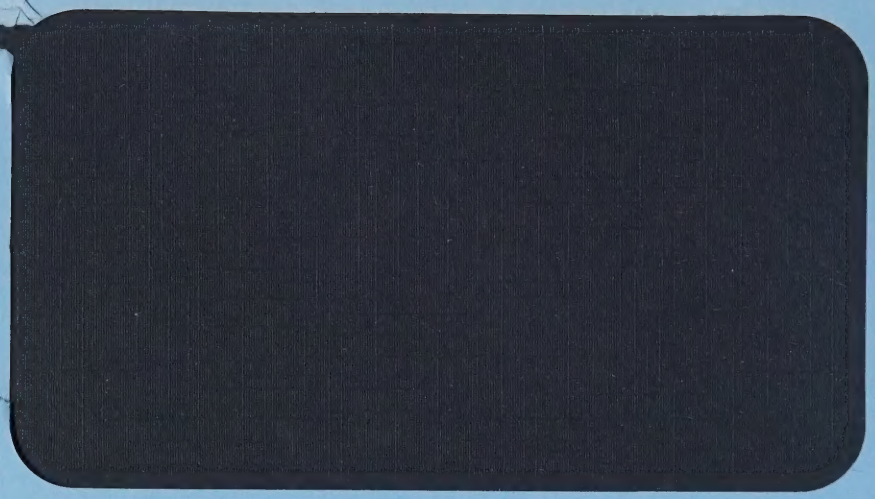


NATURAL HAZARD RESEARCH



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FLOOD HAZARD INFORMATION DISCLOSURE BY REALTORS

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SUMMARY

Research in California has shown that mandatory disclosure of earthquake hazard information has had very little impact upon home purchases in danger areas. This study looks at a flood hazard area in the Lower Florida Keys to see if there is a similar phenomenon. Questionnaires were sent to realtors, residential home buyers, and mobile home buyers within the study area (between Big Pine Key on the north and Saddlebunch Keys on the south) between January of 1980 and August of 1983. The response rate was 67% for realtors and residential real estate purchasers and 64% for mobile home buyers. The results are very similar to those in California: although the disclosures do have a positive influence upon the acquisition of flood insurance, they have not diminished the growth of population in flood hazard areas of the Florida Keys.

PREFACE

This paper is one in a series on research in progress in the field of human adjustments to natural hazards. It is intended that these papers be used as working documents by those directly involved in hazard research, and as information papers by the larger circle of interested persons. The series was started with funds from the National Science Foundation to the University of Colorado and Clark University, but it is now on a self-supporting basis. Authorship of the papers is not necessarily confined to those working at these institutions.

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TABLE OF CONTENTS

List of Tables. vii

List of Figures vii

Introduction. 1

The Lower Florida Keys Study. 3

Realtors as Disclosure Agents 5

Disclosures and Home Buyer Characteristics. 13

Effects of Hazard Disclosures 17

The Realtors' Perspective. 17

The Home Buyers' Perspective 19

Residents' Perceptions of Hurricane Threat 27

Importance of a Home's Storm Safety 28

Disclosures and the Purchase of Mobile Home Residences. 29

Conclusions 33

References. 38

LIST OF TABLES

Table

1 Proportions of Home Buyers Receiving Hurricane Flood Zone Information. 7

2 Hurricane Hazard Disclosure and Method of Home Acquisition . 7

3 Methods Realtors Claim to Utilize to Inform Prospective Customers that Homes are Located in Hurricane Zones. 8

4 Methods Utilized to Provide Home Buyers with Hurricane Flood Information, 1977-1983 10

5 Typical Questions Asked About Hurricanes Reported by Realtors 11

6 Post-1980 Hurricane Hazard Disclosure and the Homes' Appraised Building Value (1983) 13

7 Post-1980 Hurricane Hazard Disclosure and the Acquisition of Homes On and Off Big Pine Key 14

8 Methods of Hurricane Hazard Disclosure Used with Post-1980 Newcomer Buyers and Post-1980 Resident Buyers. . . 15

9 Association Between Hurricane Hazard Disclosure and the Importance of "Safety of Home During a Hurricane" in the Selection of the Home. 20

10 Association Between Hurricane Hazard Disclosure and the Importance of the "Vulnerability of Homesite to Storm Flooding" in the Selection of the Home 20

11 Hurricane Flood Zone Disclosure Methods and Their Effects Upon the Post-1980 Buyers' Home Selection Process. 23

12 Association Between Hurricane Hazard Disclosure and the Acquisition of Flood and Windstorm Insurance 25

13 Association Between Hurricane Hazard Information Disclosure and the Perceptions of Post-1980 Buyers of the Vulnerability of the Lower Florida Keys to Hurricane Damage 27

LIST OF FIGURES

Figure

1 Map of Florida Keys Showing Study Area 4

INTRODUCTION

Realtors and mortgage bankers are increasingly being given the task of providing prospective home buyers with information concerning the risks involved in moving into various hazard zones. In California, state law requires that realtors inform home purchasers that homes are located near fault lines. Dade County, Florida, requires buyers of lands in the Everglades to sign written statements indicating they are aware they are purchasing swampland. Within coastal flood zones or on river flood plains, mortgage lenders and often realtors must inform customers that homes are located within flood zones and that flood insurance may be required. When interstate sales of lands covered by the Interstate Land Sales Full Disclosure Act are made, developers must file reports indicating whether lands are subject to floods, hurricanes, or other hazards. Within Florida, as indicated by Baker and McPhee (1975, p. 85), it is "mandatory for hazardous conditions (flood hazards) extant on the land to be specified in the [subdivision] reports."

Even where laws do not explicitly require property sellers or real estate agents and brokers to disclose hazards which may affect a property, the courts may hold them liable for failure to do so. For example, Platt (1983, p. 302) cites a court case which found that where "sellers 'held themselves out as highly skilled and competent land and resort developers,' they were subject to a duty to investigate and disclose potential erosion hazards." Slosson and Havens (1984), referring to several California court decisions, indicate that the liability of real estate salespersons has been extended even further, and that brokers not only have the duty of informing potential buyers about any geologic

hazards, but also the responsibility of inspecting the property and seeking public data concerning any hazards which may be present.

Disclosure of such hazard information not only has the purpose of protecting the property buyer by its "truth-in-selling" character, but as Simpson and Riehl (1981, p. 286) comment, it may "impose upon the developer and user of coastal property the reality of natural hazards." In a report prepared for the Florida Bureau of Disaster Preparedness, Wilson and colleagues (1980, p. 141) describe how subdivision regulations "can assure...that flood hazards are disclosed before any sale of land is made to prevent victimization and fraud." They also discuss the benefits of requiring the seller to inform the purchaser that property is in a flood plain, and to disclose "the types and amounts of damages incurred through the years from floods or other natural phenomena" (Wilson et al., 1980, p. 180). Likewise, a recent Federal Emergency Management Agency publication states, "Real estate agents could play an important role in informing prospective buyers about the vulnerability of coastal properties, though they are unlikely to do so unless required by local ordinance" (Field Associates, 1983, p. 26).

However, many questions remain concerning the effects of providing home buyers with hazards information. While the effects of realtors upon the home selection process in general have been reviewed in considerable detail (see Palm, 1976 and 1981b for an excellent summary), their impacts as purveyors of hazards information is less clear. Indeed, Baker and McPhee (1975, p. 106) comment, "It is known that real estate developers often attempt to influence hazard zone land use decisions, but the extent to which their influence is felt is not known." Research conducted in

California (Palm, 1981a, 1981b) concerning the earthquake hazard indicated that even mandatory disclosure of earthquake information by realtors to home buyers within "special studies zones" had little impact upon home purchasing.

The effect of similar disclosures within flood hazard zones upon home selection has not been well-studied. The flood hazard particularly warrants study since property is often deliberately purchased within coastal hazard zones to obtain the amenities of shoreline living, while fault zone properties generally lack such special environmental attractions. Indeed, residents of coastal flood zones have been found to be among the most educated concerning the presence of environmental hazards, showing greater awareness of hazards than residents of river flood plains (Burton and Kates, 1964). Further, since shorefront homes frequently are second or vacation homes representing surplus capital (Mitchell, 1974, p. 20), it is possible that buyers' evaluations of the hazard might differ from those which would be expressed if a primary residence were being purchased.

Thus, while the impact of earthquake information upon home sales has been well-studied in California, the applicability of those findings to the provision of other hazards information is questionable. This paper explores the effects of flood zone disclosures by realtors within a hurricane flood zone.

THE LOWER FLORIDA KEYS STUDY

The effects of hurricane hazard disclosures upon the home selection process were examined from the perspectives of both realtors and home buyers within the Lower Florida Keys. Data were collected concerning

whether realtors provided their customers with hurricane information and the methods utilized to convey flood hazard data. During the 1983 hurricane season questionnaires were sent to members of the local boards of realtors, covering the area from Key West to Marathon, the largest communities on either side of the study area. A smaller sample of realtors (N = 53), shown by the questionnaires to be actively selling residential real estate, were questioned in depth using an interview survey form. All persons who purchased houses within the study area (from Big Pine Key to Saddlebunch Keys) (see Figure 1) between January 1980 and August 1983, according to county property ownership records, were mailed an eight-page questionnaire.

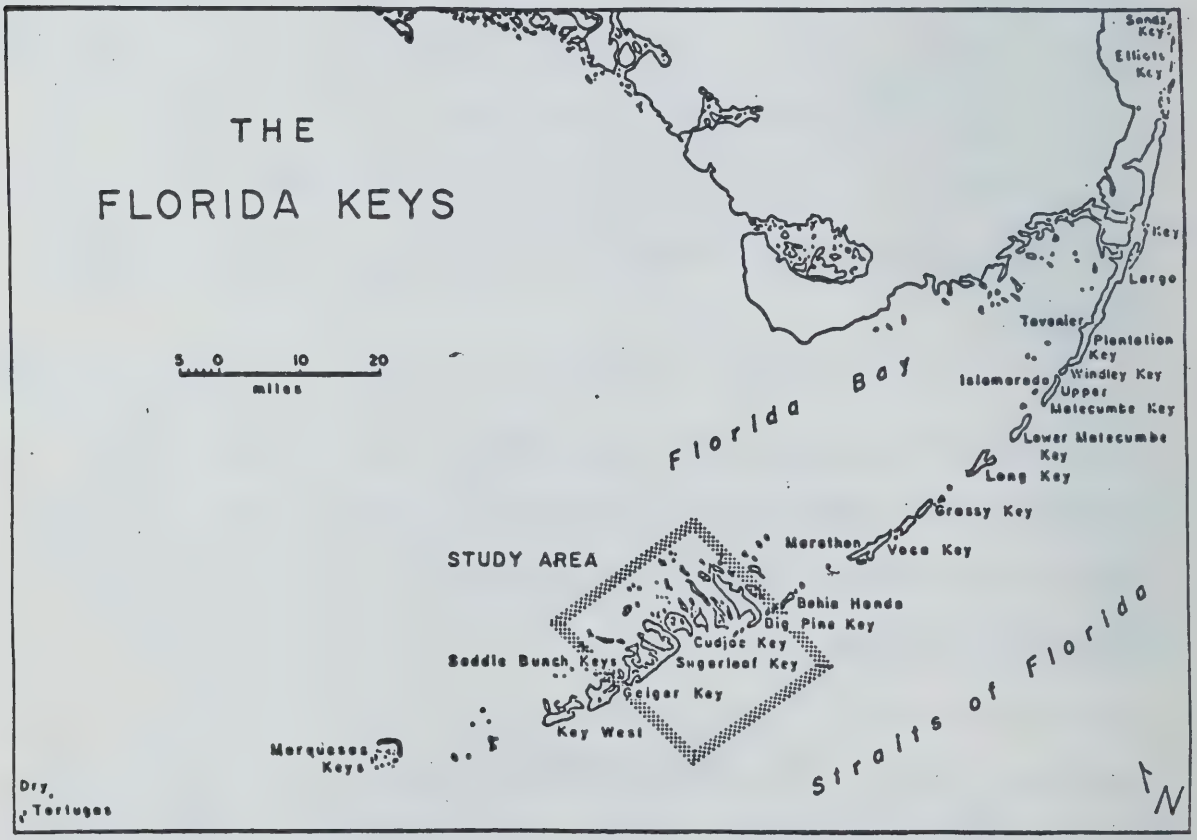

FIGURE 1

MAP OF FLORIDA KEYS SHOWING STUDY AREA

Three hundred and fifty-seven individuals returned questionnaires, a response rate of 67%. Additionally, a small proportion of 1977, 1978, and 1979 house purchasers were also sent questionnaires (145 were returned) so that any changes in the use of and effects of the hazard disclosures could be discerned. Responses to a similar questionnaire designed for mobile home residents were received from 120 persons (67% response rate) who purchased mobile homesites after January 1980. Respondents (about 2%) who indicated they acquired their homes through inheritance or gifts were excluded from statistical analysis. Although data were collected from both buyers of houses and mobile homes, the primary focus of the analysis within this paper is upon the purchasers of houses.

The Lower Florida Keys study area at present has over 5000 dwelling units along with nearly 1000 mobile home or recreation vehicle spaces which are seasonally occupied. Of the dwelling units, approximately 60% are houses, with most of the remainder being mobile homes. The highest local elevation--eight feet--is found in a small area of Big Pine Key; approximately 96% of the study area is estimated by the Florida Coastal Coordinating Council (1974, p. 1) to be situated below the five-foot contour. Because the minimum base flood level of the Federal Insurance Rate Maps for the study area is nine feet, the entire area could be inundated during a 100-year storm. Within the velocity zones nearer the shore, flooding of 13 feet is possible.

REALTORS AS DISCLOSURE AGENTS

Prospective home owners are not routinely advised about the threat of hurricane flooding by many realtors, even though virtually the entire

study area lies within designated flood zones. (Again, only 4% of the land in the Lower Florida Keys is more than five feet above sea level.) Only 52% of the new home owners (those who obtained houses since January, 1980) responded affirmatively to the question, "When you purchased your home or homesite, did your realtor (or previous owner) inform you that your home was in a hurricane flood zone or that you might need flood insurance?" On the other hand, two-thirds of the area realtors claim they told prospective home buyers that the property was located within a hurricane flood zone before a deal was closed, while another 19% indicated that they advised that flood insurance might be required, although they did not specifically discuss hurricanes.

The proportion of home purchasers reporting that their realtor or the previous home owner informed them that their home or homesite was either in a flood zone or needed flood insurance has nevertheless climbed steadily over the past few years. Thirty-five percent of home buyers were so cautioned in 1978 (Table 1); this had risen to 66% by 1982, although it dropped to 55% in 1983. One quarter of the new owners built their own homes upon the homesites which they purchased. Of those who purchased already constructed homes, approximately three-quarters bought their property through a realtor. Of those individuals who dealt directly with the previous owner since January of 1980, 52.6% indicated that the seller informed them about the property's coastal flood vulnerability compared with 58.5% of those buyers who dealt with a realtor (Table 2)--hardly a significant difference.

Undoubtedly, many persons who purchased their homes directly from the previous owner received hurricane information from realtors contacted while considering other properties. Therefore, it is possible that these

TABLE 1

PROPORTIONS OF HOME BUYERS
RECEIVING HURRICANE FLOOD ZONE INFORMATION

Year Home Acquired:	Information Received	No Information
Before 1970	20.4 %	79.6 %
1970 through 1977	32.0 %	68.0 %
1978	34.9 %	65.1 %
1979	39.2 %	60.8 %
1980	45.7 %	54.3 %
1981	48.5 %	51.5 %
1982	65.5 %	34.5 %
1983	55.1 %	44.9 %

Chi-square=37.27, significance=.0000

TABLE 2

HURRICANE HAZARD DISCLOSURE AND METHOD OF HOME ACQUISITION

How did you obtain your Lower Florida Keys home?	Hazard Disclosure Given	Hazard Disclosure Not Given
Bought it through a realtor	96 (58.5%)	68 (41.5%)
Bought it directly from previous owner	40 (52.6%)	36 (47.4%)
Built the house with own labor	7 (21.9%)	25 (78.1%)
Had home built by contractor	16 (32.0%)	34 (68.0%)

Chi-Square = 21.550, 3 degrees of freedom, significance = 0.0001.

figures do not realistically reflect differences which might exist, since newly arrived home seekers were more likely to deal through a realtor than the already-resident buyer. In contrast, only 28.1% of the residents who purchased a homesite since 1980 and subsequently constructed a house reported receiving information at the time they acquired their homesite.

The method of hazard disclosure as reported by the realtors was highly variable (Table 3). Only 27% of the realtors interviewed indicated that they or their offices had any set policy concerning how the disclosures were made. Typically, the realtor stated that his or her customers were informed about the coastal flood hazard while discussing

TABLE 3

METHODS REALTORS CLAIM TO UTILIZE TO INFORM PROSPECTIVE CUSTOMERS THAT HOMES ARE LOCATED IN HURRICANE FLOOD ZONES

"How do you usually disclose this information?"	Percent of Realtors Making Each Response
Conversation about insurance in general	32 %
Written disclosures at or before closing.	30 %
Discussion of insurance with financing.	26 %
Comes up in general conversation.	26 %
Conversation while showing homes and area	12 %
Specific mention of flood levels and hurricanes	10 %
Contrast of local problems with other areas	4 %

Note: Responses do not add to 100 percent since some realtors gave several responses to the open-ended question.

general home owners' insurance needs (32%) or while discussing insurance requirements for financing (26%). Less frequently, the realtor pointed out insurance needs while showing homes (12%), or by specifically discussing flood levels or information from "the National Hurricane Center" (19%). Likewise, only 10% of the realtors claimed to have made use of flood zone maps in their discussions with customers. Many realtors stated that they themselves had never seen the maps. Most of these disclosures were made verbally; only 30% of the realtors who inform their customers stated that they made written disclosures at or before closing.

It is interesting to note that although the current Marathon and Lower Keys Board of Realtors' disclosure form explicitly mentions flood insurance, many realtors are using older versions which only disclose the cost of "hazard insurance." Nevertheless, only 10% of the realtors interviewed indicated they felt that any "requirements that realtors should inform prospective buyers that property is located in a flood zone" were unfavorable. On the other hand, only 32% of the realtors expressed favorable attitudes towards the accuracy of the Federal Insurance Administration's flood hazard maps.

One-third of this decade's home buyers who reported receiving hurricane hazard information indicated that it was provided during discussions about hurricanes when homes were being shown. Another 14% receiving disclosures indicated that their realtor "talked about hurricanes during [their] first office visit." However, as can be seen in Table 4, this early disclosure was more common during the 1970s. The remaining informed home buyers were usually told about hurricane problems just before closing with a written disclosure form, or at the time financing was arranged.

TABLE 4

METHODS UTILIZED TO PROVIDE HOME BUYERS
WITH HURRICANE FLOOD INFORMATION 1977-1983

"How did your realtor (or previous owner) inform you that your home was in a hurricane flood zone or that you might need flood insurance?"	Year Home Purchased					
	Average 1977-1979 *	1980	1981	1982	1983	Average 1980-1983 *
Talked about hurricanes during first office visit	24 %	17 %	13 %	17 %	8 %	14 %
Talked about hurricanes when homes were shown	37 %	43 %	32 %	26 %	38 %	34 %
Talked about hurricane problems just before closing.	10 %	12 %	13 %	14 %	17 %	14 %
Included information on written disclosure form	10 %	7 %	13 %	17 %	13 %	12 %
Flood insurance requirements mentioned when financing was discussed**	17 %	10 %	13 %	9 %	4 %	9 %
Miscellaneous other methods**	2 %	12 %	17 %	17 %	21 %	16 %

* Averages are weighted by the number of real estate sales in each year.
** These responses were listed by home buyers who specified an "Other" response.

The realtors reported that relatively few customers queried them concerning hurricanes. Indeed, when the realtors were asked, "What proportion of your clients have questioned you about the hurricane safety of various houses or homesites?," 38% stated that less than a fifth of the new home purchasers asked such questions, while another 34% of the realtors reported that between one-fifth and three-fifths of their customers had questions. When asked to typify the questions which they were asked, the realtors' responses (Table 5) indicated considerable

TABLE 5

TYPICAL QUESTIONS ASKED ABOUT HURRICANES REPORTED BY REALTORS

Questions which realtors reported were most frequently asked concerning potential hurricane problems:	Percent of Realtors Making Each Response
THE PHYSICAL HURRICANE HAZARD What happens?, What are flood heights?, How often are hurricanes?	51 %
PAST HURRICANE EXPERIENCES What has happened in the past?, Have there been any recent storms?	37 %
RELATION BETWEEN BUYER AND HAZARD How would the customer or his/her home be affected?	45 %
THE REALTOR'S EXPERIENCES What are the realtor's concerns and the realtor's experiences with storms?	37 %
MITIGATION BEHAVIOR Does one evacuate? Should insurance be purchased?	24 %
MISCELLANEOUS Casual questions and jokes.	6 %

Note: Percentage figures exceed 100 percent because most realtors gave more than one response.

interest, if questions were asked at all, in recent storm experiences and storm frequency. Since the area has gone unscathed since 1966, and because nearly three-quarters of the real estate salespersons themselves moved to the Keys since then, the accuracy of the realtors' answers is highly questionable.

These findings suggest that either many new home owners already had ideas about the potential for hurricane destruction within the area or that they are poorly informed about the hurricane hazard. New home owners appear generally cognizant of the risk, with nearly two-thirds expecting a damaging hurricane within the next decade. Indeed, 77% of the realtors indicated that over four-fifths of their customers were aware that the area is subject to hurricanes. Nevertheless, there are many prospective home buyers who wished their realtor had discussed hurricane problems with them in more detail. Additional information was desired by 32% of those customers not receiving hurricane information, while only 14% receiving information wished for more details. Still, the majority of both groups were satisfied with the information (or lack thereof) which they had received.

Although realtors indicated that the majority of prospective customers realized that hurricanes had struck the area in the past and may strike again, these customers had little knowledge about the existence of flood insurance and mortgage insurance requirements. For example, 72% of the realtors reported that less than three-fifths of their customers were aware of the existence of federal flood insurance when they first contacted their realtor. In addition, 58% of the realtors interviewed indicated that less than one in three customers were aware that flood insurance was required to obtain a home mortgage.

DISCLOSURES AND HOME BUYER CHARACTERISTICS

Disclosures were most likely to be given to, or at least remembered by, purchasers of moderately priced housing (Table 6). Those buying houses whose appraised building value (excluding homesite) according to Monroe County property assessment records was below $20,000 were the least likely to receive hurricane information from their realtor or previous owner. Persons buying houses on Big Pine Key were significantly less likely to receive hurricane flood information that purchasers on all the other islands of the Lower Florida Keys (Table 7), probably reflecting the fact that some homesites are over a half mile from the coast. However, even those areas are in "A Zones," which would experience waters several feet deep during a 100-year storm.

TABLE 6

POST-1980 HURRICANE HAZARD DISCLOSURE
AND THE HOMES' APPRAISED BUILDING VALUE (1983)

Appraised Value of Residence Building (excluding homesite)	Hazard Disclosure Given	Hazard Disclosure Not Given
Less than $20,000	12 (33.3%)	24 (66.7%)
$20,001 through $40,000	54 (48.2%)	58 (51.8%)
$40,001 through $60,000	67 (60.4%)	44 (39.6%)
More than $60,000	24 (46.2%)	28 (53.8%)

Chi-Square = 9.188, 3 degrees of freedom, significance = 0.0269.

TABLE 7

POST-1980 HURRICANE HAZARD DISCLOSURE
AND THE ACQUISITION OF HOMES ON AND OFF BIG PINE KEY

Home Located:	Hazard Disclosure Given	Hazard Disclosure Not Given
Big Pine Key	48 (39.7%)	73 (60.3%)
Saddlebunch, Sugarloaf, Cudjoe, Summerland, Ramrod, Little Torch Keys	111 (55.2%)	90 (44.8%)

Chi-Square = 6.702 (after Yates Correction), 1 degree of freedom, Significance = 0.0096

Note: The other keys were grouped so that cell sizes would be suitable for statistical testing. All the other keys, however, had higher rates of disclosure than Big Pine Key.

New home owners who were also new residents to the area were also more likely to report disclosures. While 55% of the newcomers purchasing houses or homesites upon which they built since 1980 were informed about the hurricane flood hazard or the need for flood insurance, only 44% of individuals who had lived in the Keys for at least a year before they purchased their present home were so informed during the same time period--a difference significant at the .10 level. Likewise, the manner in which the realtor, or former home owner, provided the disclosure to currently resident home seekers significantly differed (.05 level) from that given the nonresident home buyer (Table 8). Newcomers who received the disclosure were much more often informed while homes were actually

TABLE 8

METHODS OF HURRICANE HAZARD DISCLOSURE USED
WITH POST-1980 NEWCOMER BUYERS AND POST-1980 RESIDENT BUYERS

How did this person inform you?	Newcomers	Resident
Talked about hurricanes during first office visit.	13 (13.3%)	7 (17.1%)
Talked about hurricanes when homes were shown.	42 (42.9%)	8 (19.5%)
Talked about hurricane problems just before closing.	15 (15.3%)	3 (7.3%)
Included information on written disclosure form.	10 (10.2%)	9 (22.0%)
Other methods.	18 (18.4%)	14 (34.1%)
Total	100.0%	100.0%

Chi-Square = 12.140, 4 degrees of freedom, significance = 0.0163.

being shown (42.9 %) than were other purchasers (19.5%).

It should be noted that a number of the already resident home buyers volunteered on their questionnaires that their realtor did not have to tell them about hurricanes because they were already aware. It is unclear whether the lower reported disclosure rate among resident home buyers reflects diminished efforts at disclosure by realtors or home sellers, or conversely, the reduced impact, and thus recall, of a disclosure by residents who are not hearing it for the first time. Even though fewer resident home buyers reported the disclosures, only 19.8% wished they had received more information concerning possible hurricane problems, compared with 24.8% of the nonresident home buyers. Although

the differences in proportions are not statistically significant, they suggest that pinpointing new residents for disclosures may occur.

The background of the newly arrived home seeker could have influenced whether or not the individual was informed about the potential hurricane threat to the property being considered, but the data does not strongly support this hypothesis. For example, of those post-1980 buyers who were informed, 54.0% had previously lived in counties along the Atlantic, Gulf, or Pacific Coasts, compared with 65.3% of those new home buyers who failed to report such disclosures--a difference significant at the .10 level. However, this difference can be attributed to differences in disclosures noted between newly arrived home buyers and purchases by already resident individuals, since the differences within the two groups on the basis of their former residence are not statistically significant. Likewise, the proportion of residents receiving disclosures who came from nonmetropolitan counties did not statistically differ from that reported by those immigrating from urban areas.

Although the differences were again not statistically significant, a greater proportion (47.3%) of the new home buyers not receiving hurricane information had previously lived elsewhere in Florida before buying their Florida Keys home, while 39.2% of those receiving disclosures were Florida residents. These observations possibly hint at some biases which the customers' former residence may have had upon their being given information. On the other hand, there is no significant association between whether or not a home purchaser received hurricane information and his age, employment status, income, or education. Additionally, the vulnerability of the purchased homesite to storm flooding was generally not associated with whether or not the home buyer received hurricane

information from the realtor or previous owner at the time of the purchase. For example, while 53.3% of the post-1980 purchasers of waterfront (shore or canal) homesites were given disclosures, compared with 41.8% of inland property purchasers, these differences were not significant at the .10 level. Likewise, the proportion of home purchasers receiving hurricane information was not statistically different between buyers on the basis of the hurricane flood zone (velocity (V) versus normal 100-year (A) flood zones), the base flood levels, or the elevation (above or below five feet) of the homesites.

EFFECTS OF HAZARD DISCLOSURES

The Realtors' Perspective

The realtors interviewed were nearly evenly split in their opinions about what effects their coastal hazard disclosures had upon their customers' selection of house type (elevated on stilts versus ground level). Indeed, 48% of the realtors interviewed reported that the disclosure aided in the selling of houses elevated on stilts, while 52% disagreed. However, the flood information was viewed as having less effect upon sales as a whole, or upon the geographic area of customer interest. Only 18% of the realtors could recount a case where their disclosure of flood hazard information had cost them any sales, and only one in eight realtors could remember a case in which a customer had looked elsewhere in the Keys following the realtors' hurricane disclosure. Several realtors mentioned that occasionally home seekers tried to avoid certain islands such as Little Torch Key, preferring a larger island such as Big Pine Key.

Still, house sales as a proportion of all residential sales were statistically associated with whether realtors informed customers about the flood hazard and whether they had a set policy about this disclosure. For example, 62% of the realtors who had disclosure policies reported that stilt houses accounted for over half of their residential sales, while stilt houses provided over half the sales for only 29% of those realtors lacking disclosure policies. Likewise, 42% of the realtors who claimed to routinely inform customers that homes are subject to hurricane flooding indicated that stilt houses provided over half of their sales, while only 29% of the realtors who did not inform customers reported as high a proportion of stilt house sales.

On the other hand, few of the customers' hurricane attitudes as reported by the realtors could be related to the realtor disclosures or disclosure policies. No statistically significant relationships exist between realtors' informing customers and the attitudes, as perceived by the realtors, which the home buyers had about stilt houses, minimum elevation requirements, or flood insurance requirements. Likewise, those realtors informing customers about the hurricane flood zones did not report being asked about hurricanes by a larger proportion of their customers than did realtors not routinely informing customers. However, a weak statistical relationship does exist (at the .10 significance level) between the existence of a set disclosure policy and the proportion of customers who asked about hurricanes, with those realtors without policies reporting that customers are more likely to ask questions.

The Home Buyers' Perspective

Only 12.4% of the new home owners informed about hurricanes indicated that this disclosure influenced their selection of their homesite or house type, although this proportion was 22.9% between 1977 and 1979. Thus, it is not surprising that the individuals who received the hurricane flood disclosures were statistically no more likely to purchase stilt houses than were uninformed home buyers. Actually, 68.4% of post-1980 home buyers who received hurricane disclosures purchased or built stilt houses, compared with 72.4% of those that did not get the warning. Likewise, a greater proportion of the home owners that got flood zone disclosures purchased homesites along the shore or canals than did other home buyers, although this difference was also not significant.

The home buyers receiving the hurricane disclosures did not statistically differ from the other home purchasers with respect to the reported importance of the "elevation of house above ground" in their home selection. On the other hand, the importance of the "safety of home during a hurricane" consideration was statistically related to whether or not the home purchasers were informed about hurricane problems (Table 9). Home buyers not receiving the flood hazard disclosure were nearly twice as likely to have indicated that the hurricane safety was "not important at all." However, home buyers who had received hurricane information were slightly less likely to consider their home safety as "very important." This relationship was stronger among the newly arrived home buyers than among the already resident home purchasers.

TABLE 9

ASSOCIATION BETWEEN HURRICANE HAZARD DISCLOSURE AND THE IMPORTANCE OF "SAFETY OF HOME DURING A HURRICANE" IN THE SELECTION OF THE HOME

Importance of "Safety of Home During A Hurricane:"	Hazard Disclosure Given	Hazard Disclosure Not Given
Very Important	47 (51.1%)	45 (48.9%)
Important	52 (49.5%)	53 (50.5%)
Slightly Important	36 (67.9%)	17 (32.1%)
Not Important at All	15 (38.5%)	24 (61.5%)

Chi-Square = 8.535, 3 degrees of freedom, significance = 0.0362.

TABLE 10

ASSOCIATION BETWEEN HURRICANE HAZARD DISCLOSURE AND THE IMPORTANCE OF THE "VULNERABILITY OF HOMESITE TO STORM FLOODING" IN THE SELECTION OF THE HOME

Importance of "Vulnerability of Homesite to Storm Flooding":	Hazard Disclosure Given	Hazard Disclosure Not Given
Very Important	38 (43.7%)	49 (56.3%)
Important	54 (50.0%)	54 (50.0%)
Slightly Important	39 (65.0%)	21 (35.0%)
Not Important at All	18 (46.2%)	21 (53.8%)

Chi-Square = 6.968, 3 degrees of freedom, significance = 0.0729.

Similarly, customers warned about hurricanes differed from those not cautioned with respect to the "vulnerability of homesite to storm flooding" in their home selection (Table 10). Although this relationship was statistically weak (significance .08), purchasers not receiving hurricane information were more likely to claim that their homesite vulnerability was either "very important" or "not important at all." Of those customers purchasing stilt houses rather than ground-level houses, those who had received coastal flood hazard information from their realtors or the former property owner were not significantly more likely to indicate that flood protection was a very important factor in their choice. Thus, while several statistically significant relationships were noted, for most customers the hurricane flood hazard disclosure did not have a major impact upon their home selection.

Whether or not home buyers were informed about the hurricane flood hazard is only weakly associated (.10 significance level) with the residents' knowledge of their own home's hazard vulnerability. Although virtually all the residences within the Lower Florida Keys are in designated hurricane flood zones, home owners reporting that their realtors or the home's seller discussed hurricanes were more aware of this fact. For example, 62.6% of the informed home owners acknowledged their flood zone location, compared to 53.5% of the others. (It is interesting to note that this association is much stronger (.001 significance level) among persons purchasing homes in 1977 through 1979).

Home owners' awareness that their residences were located in mapped flood zones is generally unrelated to their overall perceptions of the hurricane hazard. On the other hand, this knowledge about their flood

zone location is statistically related (at the 0.05 significance level) to the residents' flood insurance coverage, their attitudes concerning their ability to safely ride out a hurricane within their homes, and their considerations of the vulnerability of their homesites to storm flooding during the selection of their homes. Ironically, residents aware that their homes were in a flood plain were less likely to claim they could safely remain at home during a storm, yet they were less likely to have considered the "vulnerability of their homesite to storm flooding" as important when they selected their homes.

The methods utilized to inform prospective home buyers about the hurricane threat had varying effects upon the home selection process (Table 11). For example, discussions about hurricanes were twice as likely to make a difference in a home buyer's choice of a house or homesite (as claimed by the home purchaser) if they were made when homes were shown (17.3%) compared with all other times (8.8%). Home purchasers who reported that their realtors "talked about hurricanes during [their] first office visit" were most likely to have considered as "very important" in their selection of their homes the "elevation of house above ground" (53%), the "safety of the home during a hurricane" (56%), and the "vulnerability of homesite to storm flooding" (50%). These factors were considered as "very important" to 29%, 26%, and 20%, respectively, of the home buyers informed about the hurricane hazards at later times during the home selection process.

The impact of informing customers about hurricanes early in the house selection can also be shown by the finding that 55% of those customers told about hurricanes just before closing or by a written disclosure (usually at closing) bought stilt houses, while 72% of those

TABLE 11

HURRICANE FLOOD ZONE DISCLOSURE METHODS AND THEIR EFFECTS UPON THE POST-1980 BUYER'S HOME SELECTION PROCESS

Disclosure Method Realtor (or previous owner):	Proportion of Customers Considering Each Factor as "Very Important" in their Home Selection Elevation of House Above Ground	Safety of Home During a Hurricane	Vulnerability o Homesite to Storm Flooding
Talked about hurricanes during first office visit	53 %	56 %	50 %
Talked about hurricanes when homes were shown	30 %	23 %	16 %
Talked about hurricane problems just before closing.	28 %	30 %	25 %
Included information on written disclosure form	33 %	22 %	22 %
Flood insurance requirements mentioned when financing was discussed	31 %	38 %	15 %
Miscellaneous other	22 %	25 %	26 %

told about hurricanes during the first office visit or when property was shown selected stilt houses. It should be mentioned, however, that customers who received early disclosures, particularly during the first office visit, were also significantly more likely (91.4%) to select waterfront homesites than other buyers who received hurricane flood information (78.9%).

Flood and windstorm insurance was purchased significantly more often by post-1980 home buyers who received disclosures concerning the hurricane threat or the need for flood insurance from their realtor or the previous home owner (Table 12). This statistical association exists for both the newly arrived home seeker and the continuing resident who was purchasing a new house. This relationship was expected, considering the realtors' indications that they tended to point out hurricane problems and the need for flood insurance when discussing financing and general insurance needs. Indeed, the necessity of obtaining a mortgage gives many home owners little choice in obtaining both windstorm and flood insurance coverage. Nevertheless, of the post-1977 home buyers with mortgages (as recorded in the Monroe County Clerk's Office) who were not informed about hurricanes by their realtor or previous home seller, 5.6% did not have flood insurance or were uncertain about having any coverage (1.4%).

It is interesting to note that all of the above individuals lacking flood insurance in violation of federal regulations have mortgages from the same Monroe County financial institution. On the other hand, 100% of those individuals with mortgages who were informed about the hurricane threat had insurance. Even among those home owners lacking mortgages (which would have the legal effect of requiring insurance), the provision

TABLE 12

ASSOCIATION BETWEEN HURRICANE HAZARD DISCLOSURE
AND THE ACQUISITION OF FLOOD AND WINDSTORM INSURANCE

Windstorm Insurance	Hazard Disclosure Given	Hazard Disclosure Not Given
Windstorm Insurance Obtained	152 (97.4%)	133 (84.2%)
NO Windstorm Insurance Coverage	4 (2.6%)	25 (15.8%)

Chi-Square = 14.918 (after Yates Correction), 1 degree of freedom,
Significance = 0.0001.

Flood Insurance		
Flood Insurance Obtained	136 (86.1%)	107 (67.7%)
NO Flood Insurance Coverage.	22 (13.9%)	51 (32.3%)

Chi-Square = 13.966 (after Yates Correction), 1 degree of freedom
Significance = 0.0002

of hurricane information at the time of the home sale has a significant association with insurance coverage. For example, 93.4% of home buyers whose homes are mortgage free, but who were informed about the hurricane hazard, have windstorm insurance; however, only 74.8% of those not informed have such insurance, a difference significant at the 0.00005 level. Likewise, 77.7% of those home owners without mortgages who were told about the hurricane threat while purchasing their homes have flood insurance coverage, compared with 55.7% who were uninformed, another highly significant relationship. Thus, even controlling for the insurance requirements associated with home mortgages, the disclosure of hurricane flood information by the realtor is strongly associated with the acquisition of flood insurance.

The post-1980 home buyers generally favor the eight-foot minimum elevation requirements for new construction which were in effect when their homes were purchased. Likewise, those favoring the use of higher minimum elevations which include wave action (as shown on the Federal Insurance Rate Maps formally issued in December, 1983) outnumbered those opposing their adoption by better than three to one. The association between the home purchasers' favoring of the eight-foot requirements and whether or not the nonresident home purchaser received a hurricane disclosure was not significant. However, significant differences (at the 0.10 level) exist between those new resident home buyers who did and did not receive hurricane information with respect to their attitudes towards the adoption of the more stringent elevation levels and their attitudes towards Monroe County's building code and its enforcement. For example, 68.8% of the home buyers who received hurricane information favored the "use of these new [FIRM] maps to determine the minimum elevation levels

for new home construction," compared with 55.6% of the other home purchasers. Conversely, home buyers who did not receive disclosures were less than half as likely to feel that the present building code and its enforcement was "too restrictive."

Residents' Perception of Hurricane Threat

The disclosures appear to have had little influence upon the home owners' perceptions of the overall hurricane risk within the Keys. Although informed customers are twice as likely to claim that the Lower Florida Keys are more likely to experience hurricanes than other locations along the Gulf and Atlantic coasts of the United States, this relationship is not statistically significant (Table 13). Indeed, the majority of all recent home buyers feel that their vulnerability to hurricanes is equal to that of other coastal locations. Similarly, although slightly greater percentages of the survey respondents who were

TABLE 13

ASSOCIATION BETWEEN HURRICANE HAZARD INFORMATION DISCLOSURE AND THE PERCEPTIONS OF POST-1980 BUYERS OF THE VULNERABILITY OF THE LOWER FLORIDA KEYS TO HURRICANE DAMAGE

"Compared with other locations along the Gulf and Atlantic Coasts of the U.S., do you believe a hurricane hitting the Lower Florida Keys would be more, less, or equally likely to cause property damage?"

	MORE	LESS	EQUALLY
Hazard Disclosure Given	20 (12.8%)	33 (21.2%)	103 (66.0%)
Hazard Disclosure NOT Given	10 (6.8%)	32 (21.9%)	104 (71.2%)

Chi-Square = 3.026, 2 degrees of freedom, significance = 0.220.

informed about hurricanes by their realtor or previous owner feel that a hurricane hitting the Lower Florida Keys would be more likely to cause damage than at other coastal locations, these differences again lack statistical significance. Likewise, in their evaluations of the hurricane vulnerability of the Lower Florida Keys compared to Middle and Upper Keys locations, of the anticipated damage to their homes if the center of a hurricane were to pass over their area of the Florida Keys, and of the changes in their hurricane awareness since they began living in the area, no significant differences were discerned between those home owners who received hurricane information from their realtor or home seller and those who did not. Furthermore, the disclosures were not related to expected evacuation behavior in case of a hurricane warning. Thus, while the provision of hurricane information to home purchasers may influence certain aspects of their home acquisition process, it appears on the whole to have been inconsequential in the development of their overall perception of the hazard.

The methods utilized to disclose hurricane information appear more closely related to differences in the new home owners' perception of the area's hurricane risk. For example, 85% of those customers who were told about hurricanes during their first office visit stated that a damaging hurricane within the study area within the next decade was "likely" or "very likely" compared with 57% of those receiving disclosures at other times, and with 65% of those receiving no disclosures at all.

IMPORTANCE OF A HOME'S STORM SAFETY

Realtors and new home owners disagree about the importance of a dwelling's storm safety in the home selection process. For example, two-

thirds of the new home owners indicated that the home's storm safety was "very important" or "somewhat important" in choosing a house. Conversely, most realtors viewed this consideration as being of little importance--approximately equal to proximity of employment, a factor of dubious importance to a population largely composed of retired persons or vacationers. In fact, only 21.3% of house purchasers were concerned with their location vis-a-vis employment.

New home owners are typically more concerned about the threat of hurricane flooding than the area's realtors, just as they are more concerned than most longtime residents. For example, hurricane flooding is considered a "major problem" to 27% of the home owners and to 19% of the realtors. Proportionately, twice as many realtors claim that hurricane floods are "not a problem at all" as do new home owners.

DISCLOSURES AND THE PURCHASE OF MOBILE HOME RESIDENCES

Over one-third of the residences within the Lower Florida Keys are mobile homes; realtors are less likely to be involved with mobile home sales. Purchasers of mobile home residences were significantly more likely (47.4% versus 31.0%) to have purchased the mobile homesite directly from the previous owner than purchasers of houses were likely to deal directly with the former owner. The survey of realtors substantiates these claims, with 55% claiming they sold no on-site mobile homes and an additional 32% stating that such sales accounted for only 1%-5% of their total residential sales. Such a low sales involvement was explained by several realtors as due to most mobile home residences being sold among residents or friends of residents living within the various mobile home communities. Further, Florida's legal prohibition of realtors selling

mobile homes apart from their homesites was also frequently cited. Slightly less than half (46.5%) of the post-January 1980 mobile home buyers indicated that they obtained their mobile home and lot separately. Typically, the purchaser of a mobile home homesite (with or without the mobile home) spent less time searching than did the purchaser of a house (64% of the former spending less than a month, compared with 51% of house purchasers).

Slightly less than half of the mobile home purchasers reported that their realtor, or the previous land owner, informed them that the property was in a hurricane flood zone or that flood insurance might be needed, a proportion not significantly different from that reported by purchasers of houses. Likewise, the method of this disclosure was similar to that received by home buyers. In addition, mobile home residents and house residents appeared equally satisfied with the information they received. Although only a small proportion of either set of purchasers indicated that the information made any difference in their choice of property, mobile home purchasers reported it only half as frequently.

Since April of 1977, a Monroe County ordinance (Ordinance 8-1977) has required that variances be obtained from the Board of County Commissioners for all new mobile homes placed at an elevation of less than eight feet. The ordinance further stated:

> If a mobile home is placed in an existing park or subdivision or varianced lot, the Building Department shall not issue a Building Permit or Certificate of Occupancy unless and until the owner of the mobile home or lessee, as the case may be, shows the Building Official a recorded deed or unrecorded written lease wherein the mobile home owner has the fact disclosed to him in said deed or lease that the mobile home is being located in a flood-prone area and that an evacuation plan indicating vehicular access and an escape route is filed with the Disaster Preparedness Authorities (Monroe County 1977, pp. 4-5).

This ordinance, however, has been basically ignored. While mobile homes have been added within the study area, no requests for mobile home variances had been filed with the Monroe County Building Department, which had received only 16 such requests for the remainder of the county between January of 1980 and December of 1983. However, substantial changes in personnel in the department were made in 1983, and the County Commission enacted a new ordinance in November, 1983, placing stricter elevation and variance requirements on mobile homes (Monroe County, 1983). Although not affecting real estate transactions during the time frame of this study, it appears these regulations will have a greater impact in the future.

There is relatively little evidence that realtors have targeted any particular group of mobile home seekers to receive the hurricane information disclosures, except that a greater proportion of persons that obtained their mobile home and homesite together reported receiving hurricane information (53.8%) than persons who purchased their lot separate from their mobile home (38.0%). Yet, even this relationship was only significant at the 0.134 level after Yates correction.

No significant differences existed between mobile home purchasers receiving disclosures and those who did not with respect to their socioeconomic characteristics (age, education, and income), or their previous residence (census region, urban versus rural background, and coastal versus inland location). It should be noted, however, that mobile home buyers significantly differed from purchasers of houses on several of the variables. For example, only 19.5% of the mobile home purchasers were from the South Atlantic states, compared with 47.7% of the house buyers, and they were less than half as likely to have previously lived within a

coastal county. Likewise, as a whole, mobile home buyers had less income.

The hurricane flood disclosures had virtually no impact on the mobile home purchasers' choice of a homesite--with only one of 54 post-1980 buyers who received the hurricane information reporting that it influenced his/her choice. Likewise, no statistical differences existed between mobile home purchasers receiving and not receiving hurricane information with respect to the importance in their home selection process of the "elevation of the homesite," the "safety of home during a hurricane," or the "vulnerability of homesite to storm flooding." However, it can be argued that because mobile home purchasers expect that their homes would be destroyed by hurricane winds anyway, efforts to obtain safer homesites would be futile. Indeed, 80.1% of the mobile home purchasers expected that their homes would receive major damage or be totally destroyed if the center of a hurricane were to pass over their area of the Keys, with only 19.5% believing that flooding would be the greatest cause of this damage. Thus, it appears that the perceived futility of physically protecting mobile homes negates any impact which the hurricane information might have on the choice of homesite.

The hurricane flood zone disclosures were much more strongly related to decisions to purchase windstorm and flood insurance. Of those mobile home purchasers told about the hazard or flood insurance, 90.4% carry windstorm insurance, compared with 55.9% of the uninformed. Likewise, 82.7% of the buyers receiving hurricane disclosures purchased flood insurance, compared with 44.1% of the other mobile home residents, a difference significant at the 0.0001 level. Nevertheless, while nearly two-thirds of all mobile home purchasers feel that the availability of

flood insurance will make it easier to sell their homes, no differences existed between mobile home buyers who did and did not receive the hurricane information.

The provision of hurricane information had little impact upon the mobile home buyers' perception of hurricanes, hurricane winds, or hurricane waves and flooding as problems related to living in the Keys. Likewise, no differences existed in the purchasers' perceptions of how likely a damaging hurricane might be within the next decade. Mobile home buyers with and without disclosures did not significantly differ in their evaluations of the vulnerability of the Lower Florida Keys to hurricane damage, as compared to other Gulf and Atlantic coast locations or the Middle and Upper Florida Keys. However, purchasers receiving disclosures were significantly more likely to claim that the Keys were either more or less likely to be struck by a hurricane (41.8%) than were other buyers, 80.3% of whom felt the Keys were equally vulnerable. Nevertheless, the disclosure's impact upon perceptions appears minimal at best.

CONCLUSIONS

While realtors may provide home buyers with coastal hazards information, this information is not of great significance to most of their customers when they select their homes. Indeed, only one-third of the home buyers who received disclosures considered realtors to be the best source of information concerning minimum elevation requirements (100-year flood levels), with county building and zoning officials (21%) and insurance agents (14%) viewed by others as the best sources. Interestingly, bankers were rarely (2.8%) viewed as a good information source,

even though it is their responsibility to assure that mortgaged homes carry flood insurance.

It is also possible that information about flood insurance may reduce the overall concern of customers about property losses, since buyers receiving disclosures more frequently located along the shore or in ground-level houses. Many realtors admitted this was the case. Half of the realtors interviewed who sold houses within the Lower Florida Keys affirmatively answered the question, "Have you found that the availability of flood insurance makes your customers more likely to locate near the water or on low-lying property?" Of course, it may also be argued that because of these sites' greater vulnerability, realtors made greater efforts to warn their purchasers.

Disclosure of hurricane flood zone information by realtors was strongly associated with the home owners' acquisition of both windstorm and flood insurance, even among residents lacking mortgages. Even though the effects of the disclosures were not always apparent, it appears that the disclosure of coastal flood hazard information by realtors could indeed raise customer awareness and contribute to hazard avoidance behavior if the information is provided early in the home selection process. However, the proportion of home buyers who received information about hurricanes early in the home selection process appears to be dropping. Disclosures at the time of closing may fulfill legal obligations, but are unlikely to alter a customer's selection. The disclosures given at the time homes are selected have had no apparent effect upon the long-term attitudes and concerns which residents have concerning the hurricane hazard, nor are they associated with anticipated behavior in the face of an imminent hurricane threat.

The results noted within the Lower Florida Keys are generally consistent with those observed by Palm (1981b) among buyers in both Berkeley and Contra Costa County, California. In both studies the survey populations were wealthier and better-educated than the national norm and included no large minority groups. The home search took approximately the same length of time in both areas. The home buyers within the special studies zones in California (near mapped earthquake fault lines) felt that "price, investment potential or resale value, number of bedrooms (size), and view to be of primary importance" in influencing their purchase decisions (Palm, 1981b, p. 48). Within the Lower Florida Keys, while both price and investment potential or resale value were "very important" to approximately half the respondents, the nearness to the shore or canals and access to deep-water boating were even more important.

Some differences did exist in the way residents received their hazard disclosures, with the use of contract addenda far more common in California (Palm, 1981b, pp. 54-55), and Florida buyers more often told while homes were shown--possibly as an explanation of the increasingly prevalent stilt architecture. Nevertheless, disclosures had minimal discernible consequences in either study area. In the California study, 22% of those respondents receiving disclosures felt that the information made a difference in their home selection, compared with 12% of the Florida Keys home seekers. The slight difference may be explained by the finding that the primary home selection motivations in the Keys inevitably bring home buyers into the hurricane flood zone, but in California no environmental amenities are attached to the special studies zones.

In both studies, however, location within a designated hazard zone is expected by new home owners to have little affect upon the price of their home or their ability to sell it sometime in the future. Indeed, Palm (1981b, p. 54) reports that 88.4% felt "that location within the [California] special studies zones would make no difference," while 72.1% of the Keys house purchasers stated that flood zone location would have no effect, with an additional 15.3% expressing uncertainty as to whether or not it would have an effect--findings which are quite similar. The purchase of hazard insurance (flood in Florida and earthquake in California) was positively influenced by the distribution of hazard information.

The relatively low proportion of home buyers who indicated that the hazards information influenced their home selection should be considered in the proper perspective. Indeed, considering all the information provided to home seekers, Hempel (1969, p. 56) discovered in his Connecticut study that "only 17% of the households reported the broker [real estate agents or realtors] had some influence on their choice of homes." While realtors may influence home buyers, Barresi (1968, p. 63) reports that the majority of "...agents attempt to direct the prospective buyers to particular houses and areas based on their interpretations of his desires, needs, and financial ability." Furthermore, the real estate agent is able to exert subtle control over the buyers by the selection of homes or areas which are shown, or even in the selection of clients.

Newcomers to the communities are typically most reliant upon realtors as information sources (Palm, 1976, p. 269). When home seekers have preconceived notions concerning residential areas, information provided by realtors may have minimal effects.

> Buyer acceptance of the brokers's advice is likely to be significantly affected by the consistency of this information with the buyer's preconceptions and existing beliefs. Thus, the broker who rushes to correct the "misinformed" buyer may create suspicion and confusion which severely inhibits his subsequent efforts to help the buyer (Hempel, 1969, pp. 39,41).

Newcomers within coastal areas often have preconceived notions about coastal hazards. Windham and associates (1977, p. 32) note that many persons had already decided upon evacuation behavior before they moved to the shore. It should be further noted that many purchasers of coastal real estate are not exactly newcomers. Within the Lower Florida Keys over a third of the post-1980 home buyers had already lived in the area for at least a year before purchasing their present homes. Furthermore, since many of the coastal properties are purchased as nonpermanent residences, their acquisition often "may follow a period during which yearly or more frequent vacation or tourist trips are undertaken" (Gober and Mings, 1984, p. 172). Indeed, home buyers decided where to migrate before they decided to move and select a home--a characteristic of the migration of retired persons. Thus, it is not surprising that realtors may have little acknowledged impact upon their customers' decisions.

The findings within the Lower Florida Keys study support the California results that the disclosure of hazard information to home buyers had only minimal effects. Not only do most real estate agents disclose the information at the time and in the manner least likely to cost them a sale, but the recipient is often not inclined to act upon the information even if it is given. Indeed, the majority do not even want to receive such information. Some buyers, upon hearing the warnings, are likely to assuage their fear by claiming that they are less vulnerable than others, an observation of Sheaffer (1960, p. 73) which was also noticed in the Keys. As Marston (1984, p. 2) notes, others "informed of

the potential risk, still purchase the house because she/he plans to live in the house only a short time...." Where retirees dominate the population, as in the Keys, such a conclusion would not be surprising.

An implication of these findings might be that hazard disclosures are of little value except to ensure compliance with legal requirements or to eliminate possible liability claims against the seller. However, even influencing one in five buyers is better than nothing, and when the proper methods and timing are used, the number reached might be higher. Although disclosures can have a positive influence upon the acquisition of flood insurance, neither disclosures nor the National Flood Insurance Program have done much to slow the rapid growth of coastal population. This population is not unaware of the possibility of future hurricane destruction, but our research only strengthens the argument of Saarinen (1982, p. 1) that "...there is increasing skepticism that more information by itself will lead to appropriate adjustments."

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